NON-PUBLIC?: N
ACCESSION #: 8810070297
LICENSEE EVENT REPORT (LER)

FACILITY NAME: DIABLO CANYON UNIT 2 PAGE: 1 OF 4

DOCKET NUMBER: 05000323

TITLE: REACTOR TRIP DUE TO SEISMIC TRIP PROTECTION PANEL MALFUNCTION DURING
SURVEILLANCE TESTING
EVENT DATE: 09/01/88 LER #: 88-010-00 REPORT DATE: 10/03/88

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(A)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: STEPHEN D. WILSON TELEPHONE: (805) 595-7351

COMPONENT FAILURE DESCRIPTION:
CAUSE: X SYSTEM: JC COMPONENT: RLY MANUFACTURER: X999
REPORTABLE TO NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On September 1, 1988, at 1129 PDT, with the unit in Mode I (Power Operation), a reactor trip and subsequent turbine trip occurred during performance of Surveillance Test Procedure (STP) I-72A, "Functional Test of the Seismic Trip Channels". During performance of this STP, a simulated seismic test signal was input to the X axis of seismic sensor package number 2. This simulated test signal together with a previously undetected relay contact failure of seismic trip relay K7 (sensor package number 3), in Train A trip logic development circuit. satisfied the two-out-of-three (in one axis) logic requirements resulting in a reactor trip.

All systems functioned as designed and the unit was stabilized in Mode 3 (Hot Standby), at approximately 1155 PDT. Diesel generator 2-2 started during the event but, by design, did not load.

The seismic trip logic relay contact failure went undetected due to the trip. channel and logic status not being available to technicians or control room

operators.

The seismic trip system will be upgraded to provide trip channel and logic indication during testing.

End of Abstract



I. Plant Conditions

Unit 2 was in Mode I (Power Operation) at 100 percent power.

II. Description of Event

A. Event:

On September 1, 1988, at 1129 PDT. with the unit in Mode I (Power Operation), a reactor (AB)(RCT) trip and subsequent turbine (TA)(TRB) trio occurred during performance of Surveillance Test Procedure (STP) - I-72A, "Functional Test of the Seismic Trip Channels". During performance of this STP, a simulated seismic test signal was input to the X axis of seismic sensor package (IN) number 2. This simulated test signal together with a previously undetected relay contact failure of seismic trip relay K7 (RLY) (sensor package number 3), in Train A trip logic development circuit, satisfied the two-out-of-three (in one axis) logic requirements resulting in a reactor trip.

All systems functioned as designed and the unit was stabilized in Mode 3 (Hot Standby), at approximately 1155 PDT. Diesel generator (EK)(DG) 2-2 started during the event but, by design, did not load.

The four hour nonemergency report required by 10 CFR 50.72 was made at 1239 PDT.

B. Inoperable structures, components, or systems that contributed to the event:

Seismic trip relay K7.

C. Dates and approximate times for major occurrences:

1. September 1, 1988, at 1129 PDT: Event Date.
2. September 1, 1988, at 1155 PDT: Unit stable in Mode 3.
3. September 1, 1988, at 1239 PDT: Four hour nonemergency notification to the NRC required by 10 CFR 50.72.

D. Other systems or secondary functions affected:

None.

E. Method of discovery:

The event was immediately apparent due to alarms and other indications in the control room.



F. Operator actions:

Operators stabilized the unit in Mode 3 in accordance with plant emergency procedures.

G. Safety system responses:

1. The reactor trip breakers (JC)(BKR) opened.

2. The control rod drive mechanisms (AA)(DRIVE) allowed the control rods to drop into the reactor.

3. The turbine tripped.

4. Diesel generator 2-2 started but, by design, did not load.

III. Cause of Event

A. Immediate Cause:

A reactor trip was initiated when the seismic trip logic was inadvertently satisfied during surveillance testing.

B. Root Cause:

The seismic trip logic relay contact failure went undetected due to the trip channel and logic status not being available to technicians or control room operators. The visual inspection used to determine the state of the relay was not effective in finding the failed relay contact.

Extreme caution was exercised when performing STP I-72A due to a similar reactor trip that occurred as discussed in LER 2-88-002. A total of three technicians were assigned to perform this STP as opposed to two technicians that would normally perform STP I-72A. Each step was independently verified twice to ensure that no errors were bade. Since the reactor trip described in LER 2-88-002 had been caused by a failed coil on a logic relay, great care was

exercised to ensure that all relays were in the energized state prior to testing the next seismic sensor package.

IV. Analysis of Event

A reactor trip is a previously analyzed Condition II event. There were no safety consequences or implications from this event.



V. Corrective Actions

A. Immediate Corrective Actions:

The failed logic relay was replaced.

B. Corrective Actions to Prevent Recurrence:

1. The seismic trip system will be upgraded to provide trip channel and logic indication during testing.

2. A review will be made to ensure that the safety significance of in-house operating experience is properly assessed and that actions taken to address in-house operating experience are thorough and timely and that senior management is informed and aware of the status of these actions.

VI. Additional Information

A. Failed Components:

Seismic trip relay K7

Vendor: Midtex

Part Number: 156-14F2A5

B. Previous LEgs on similar problems:

LER 2-88-002-00 Reactor Trip From Seismic Trip

This event occurred when required surveillance testing was being performed concurrent with an undetected logic relay failure (logic relay coil was open). The corrective action included a visual inspection of the relays to ensure the relays were in the energized state prior to testing. The visual inspection did not prevent the event in LER 2-88-010 because even though the relay was verified to be in the proper position the visual inspection failed to detect

that one of the contacts had failed closed. Final evaluation and implementation of trip channel and logic indication had not been completed prior to the September 1, 1988 trip.

ATTACHMENT # 1 TO ANO # 8810070297 PAGE 1 OF 1

Pacific Gas and Electric Company
77 Beale Street James D. Shiffer
San Francisco, CA 94106 Vice President
415/972-7000 Nuclear Power Generation
TWX 9lO-372-6587

October 3, 1988

PG&E Letter No. DCL-88-233

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Re: Docket No. 50-323, OL-DPR-82
Diablo Canyon Unit 2
Licensee Event Report 2-88-010-00
Reactor Trip Due to Seismic Trip Protection Panel Malfunction During Surveillance Testing

Gentlemen:

Pursuant to 10 CFR 50.73(a)(2)(iv), PG&E is submitting the enclosed Licensee Event Report concerning a reactor trip and inadvertent emergency diesel generator start that occurred during surveillance testing of the seismic trip system.

This event has in no way affected the public's health and safety.

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

Sincerely

J. D. Shiffer

cc: J. B. Martin
M. M. Mendonca
P. P. Narbut
B. Norton

H. Rood
B. H. Vogler
CPUC
Diablo Distribution
INPO

Enclosure

DC2-88-TI-NO93

232IS/0063K/DY/2160
ACCESSION #: 8810070311